PATENT

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IN THE CLAIMS:

Please find a listing of the claims below, with the statuses of the claims shown in parentheses. This listing will replace all prior versions, and listings, of claims in the present application.

1-3. (Cancelled).

4. (Previously Presented) A semiconductor device, comprising:

a source electrode;

a drain electrode;

a channel coupled to the source electrode and the drain electrode and comprised of a ternary compound containing zinc, tin and oxygen, where at least a portion of the channel is formed from a zinc-tin oxide compound having the following stoichiometry: Zn_2SnO_4 ;and

a gate electrode configured to permit application of an electric field to the channel.

5. (Cancelled).

6. (Previously Presented) The semiconductor device of claim 50, where the zinc-tin oxide compound is substantially amorphous.

7. (Previously Presented) The semiconductor device of claim 50, where one or more of the source, drain, and gate electrodes is fabricated so as to be at least partially transparent.

8. (Previously Presented) The semiconductor device of claim 50, where the channel further includes phase-segregated ZnO.

9. (Previously Presented) The semiconductor device of claim 50, where the channel further includes phase-segregated SnO_2.

10. (Cancelled).

11. (Previously Presented) The semiconductor device of claim 50, where the channel is adapted to be deposited using an RF sputtering process.

12. (Previously Presented) The semiconductor device of claim 50, where the source electrode and the drain electrode are formed from an indium-tin oxide material, and are patterned so that the source electrode and drain electrode are physically separate from one another.

13. (Cancelled).

14. (Previously Presented) The semiconductor device of claim 55, where the dielectric material is an aluminum-titanium oxide material.

15. (Original) The semiconductor device of claim 14, where the dielectric material includes:

a first outer layer immediately adjacent to and In contact with the channel layer;

a second outer layer immediately adjacent to and in contact with the gate electrode,

where the first and second outer layers are each formed from Al_2O_3 and

alternating Interior layers of AlO_x and TiO_y between the first and second outer layers,

where x and y are positive nonzero values.

16-18. (Cancelled).

19. (Previously Presented) A three-port semiconductor device, comprising:

a source electrode;

a drain electrode;

a gate electrode; and

means for providing a channel disposed between the source electrode and drain electrode, the means for providing a channel configured to permit movement of electric charge therethrough, between the source electrode and the gate electrode in response to a voltage applied at the gate electrode, the means for providing a channel formed at least in part from a ternary compound containing zinc, tin and oxygen, where the means for providing a channel includes means for providing a semiconductor formed from a zinc-tin oxide compound having the following stoichiometry: Zn_2SnO_4.

20-25. (Cancelled).

26. (Previously Presented) The thin-film transistor of claim 60, where the thin-film transistor is configured so that the ability of the channel layer to convey electric charge between the first and second electrodes in response to a potential difference applied across the first and second electrodes is dependent upon a gate voltage applied at the gate electrode.

27-30. (Cancelled).

31. (Currently Amended) The thin-film transistor of claim 60 [[1]], where the zinc-tin oxide compound is substantially amorphous.

32. (Currently Amended) The thin-film transistor of claim 60 [[1]], where one or more of the source, drain, and gate electrodes is fabricated so as to be at least partially transparent.

33. (Currently Amended) The thin-film transistor of claim 60 [[1]], where the channel layer further includes phase-segregated ZnO.

34. (Currently Amended) The thin-film transistor of claim 60 [[1]], where the channel layer further includes phase-segregated SnO_2.

35. (Previously Presented) The thin-film transistor of claim 60, where one or more of the source, drain, and gate electrodes is fabricated so as to be at least partially transparent.

36. (Previously Presented) The thin-film transistor of claim 60, where the channel layer is adapted to be deposited using an RF sputtering process.

37. (Previously Presented) The thin-film transistor of claim 60, where the first and second electrodes are formed from an indium-tin oxide material, and are patterned so that the first and second electrodes are physically separate from one another.

38. (Previously Presented) The thin-film transistor of claim 60, where the dielectric material is an aluminum-titanium oxide material.

39. (Original) The thin film transistor of claim 38, where the dielectric material includes:

a first outer layer immediately adjacent to and in contact with the channel layer;

a second outer layer immediately adjacent to and in contact with the gate electrode, where the first and second outer layers are each formed from Al_2O_3 and

alternating interior layers of AlO_x and TiO_Y between the first and second outer layers, where x and y are positive nonzero values.

40-47. (Cancelled).

48. (Previously Presented) A display, comprising:

a plurality of display elements configured to operate collectively to display images, where each of the display elements includes a semiconductor device configured to control light emitted by the display element, the semiconductor device including:

a source electrode;

a drain electrode;

a channel coupled to the source electrode and the drain electrode and comprised of a ternary compound containing zinc, tin and oxygen, where at least a portion of the channel of the semiconductor device is formed from a zinc-tin oxide compound has the following stoichiometry: Zn_2SnO_4 and

a gate electrode configured to permit application of an electric field to the channel.

49. (Cancelled).

50. (Currently Amended) A semiconductor device, comprising:

a source electrode;

a drain electrode;

a channel coupled to the source electrode and the drain electrode and comprised of a ternary compound containing zinc, tin, and oxygen having the stoichiometry: $(ZnO)_j(SnO_2)_{1-j}$ where j is between 0.05 and 0.95; and

a gate electrode configured to permit application of an electric field to the channel.

51-53. (Cancelled).

54. (Previously Presented) The semiconductor device of claim 50, where one or more of the source, drain, and gate electrodes is fabricated so as to be at least partially transparent.

55. (Previously Presented) The semiconductor device of claim 50, where the gate electrode is physically separated from the channel by a dielectric material.

56-59. (Cancelled).

60. (Currently Amended) A thin-film transistor, comprising:

a gate electrode;

a channel layer formed from a zinc-tin oxide material having the stoichiometry: Zn_2SnO_4;

a dielectric material disposed between and separating the gate electrode and the channel layer, and

first and second electrodes spaced from each other and disposed adjacent the channel layer on a side of the channel layer opposite the dielectric material, such that the channel layer is disposed between and electrically separates the first and second electrodes.

61-63. (Cancelled).

64. (Previously Presented) A display, comprising:

a plurality of display elements configured to operate collectively to display images, where each of the display elements includes a semiconductor device configured to control light emitted by the display element, the semiconductor device including:

a source electrode;

a drain electrode;

a channel coupled to the source electrode and the drain electrode and comprised of a ternary compound containing zinc, tin and oxygen having the stoichiometry: Zn_2SnO_4; and a gate electrode configured to permit application of an electric field to the channel.

65-67. (Cancelled).